



UNITED STATES PATENT AND TRADEMARK OFFICE

11-7
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/808,613

03/25/2004

Shinroku Maejima

50099-253

5019

7590 11/16/2007
MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

NGUYEN, DANG T

ART UNIT	PAPER NUMBER
----------	--------------

2824

MAIL DATE	DELIVERY MODE
-----------	---------------

11/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/808,613

Applicant(s)

MAEJIMA ET AL.

Examiner

Dang T. Nguyen

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) 6-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. This office action is in response to applicant's Response to Election/Restriction filed on 10/10/07. Claims 1 - 3 and 5 have been canceled. Claim 4 has been amended. Claims 6 - 11 have been withdrawn. Claims 4 and 12 - 14 are pending on this application. Claim 4 is independent claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 4 is rejected under 35 U.S.C. 102(e) as being anticipated by Perner et al., U.S. Patent No. US 6,947,313 B2 – filed Aug. 27, 2003.

Regarding independent claim 4, Fig. 6 of Perner discloses a magnetic recording device having a second conductor (225), a first conductor (226), and a magnetic recording element (222) connected to said first conductor (226), provided sequentially in this order along a direction (*element 222 connects to 226 along a hard axis X*), wherein a configuration of said magnetic recording element (222) includes a straight line parallel to an easy axis of said magnetic recording element (222) (*the*

straight line that parallel with Y direction of the magnetic recording element 222), said easy axis (Y) extending perpendicular to the direction (X), said first conductor (226) extends along a hard axis (X), and a side face of said magnetic recording element (the side face of 222) and a side face of said first conductor (the side of conductor 226) are aligned with each other at the direction of said hard axis (X)(see Fig. 6 the side of element 222 and conductor 226 are aligned to each other at the hard axis (X) direction, the bottom of element 222 are aligned with the top of conductor 226).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perner et al., U.S. Patent No. 6,947,313 B2 in view of Ounadjela et al., U.S. Patent No. 6,798,691 B1 - filed Jun. 28, 2002.

Regarding dependent claim 12, Perner as applied to claim 4 above disclosed every aspect of applicant's claimed invention except for a magnetic layer showing an S-shaped magnetization distribution when a strength of a magnetic field applied to said magnetic layer along said hard axis of said magnetic layer is higher than a threshold value and showing a C-shaped magnetization distribution when said strength of said

magnetic field applied to said magnetic layer along said hard axis is lower than said threshold value.

Fig. 4 of Ounadjela discloses a magnetic layer showing an S-shaped [42b] magnetization distribution when a strength of a magnetic field applied to said magnetic layer (Col. 19 lines 60-64) along a hard axis of said magnetic layer is higher than a threshold value (Col. 18 line 40 – Col. 19 line 17) (*Fig. 42b discloses when a strength of magnetic field applied more current IDI along a hard axis to the selected level then it transverse magnetic field in the S-shaped, inherent the magnetic layer is higher than threshold voltage then the switching state occurs*) and showing a C-shaped [40b] magnetization distribution when said strength of said magnetic field applied to said magnetic layer (Col. 19 line 45 – Col. 20 line 5) along said hard axis is lower than said threshold value (Col. 18 line 25 – Col. 20 line 5, *for disclosing if a strength of magnetic field current applied lower current or no external magnetic fields are applied along a hard axis then a magnetization in the C-state*).

• Perner and Ounadjela are common subject matter for magnetic memory. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the S-shaped of Ounadjela into the magnetic element of Perner for the purpose of providing an magnetic memory cell having a configuration that is substantially insensitive to variation in shape, size, and the presence of defects and also providing a method, which not only reduces the current margin between individual memory cells, but also reduces the overall amount of current required during a writing procedure (Col. 3 lines 26-35).

Regarding dependent claim 13, Perner as applied to claim 12 above disclosed every aspect of applicant's claimed invention except for said configuration of said magnetic layer is symmetrical with respect to an axis parallel to said hard axis and asymmetrical with respect to an easy axis of said magnetic layer.

Fig. 4 of Ounadjela discloses wherein a configuration of said magnetic layer is symmetrical with respect to an axis parallel to said hard axis (Col. 24 lines 1-3) and asymmetrical with respect to an easy axis of said magnetic layer (Col. 13 lines 1-20).

Perner and Ounadjela are common subject matter for magnetic memory. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the configuration of the magnetic layer of Ounadjela into the magnetic element of Perner. Since Ounadjela taught the benefit by pointing out that the use of symmetrically shaped memory cells is likely to produce at least some variation in the switching fields associated with the individual cells in a memory array and the asymmetrical memory cell would avoid large discontinuities of local magnetic vectors at the edges of the memory cell by including smoothly curved edges (Col. 11 lines 55-57 and Col. 12 lines 4-7).

Regarding dependent claim 14, Perner as applied to claim 12 above disclosed every aspect of applicant's claimed invention except for the configuration of said magnetic layer includes a rounded corner.

Figs. 3, 4 and 12 of Ounadjela disclose the configuration of said magnetic layer includes a rounded corner (Col. 23 lines 17-31).

Perner and Ounadjela are common subject matter for magnetic memory.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate Ounadjela's rounded corner into Perner's magnetic element for the purpose of providing an magnetic memory cell having a configuration that is substantially insensitive to variations in shape, size, and the presence of defects.

Response to Arguments

4. Applicant's arguments filed 10/10/07 have been fully considered but they are not persuasive.
5. Under remarks, on page 8, with respect to claim 4, applicant's argued that Perner does not identically disclose a magnetic recording device including all the limitations recited in independent claim 4". Examiner respectfully disagrees from the following:

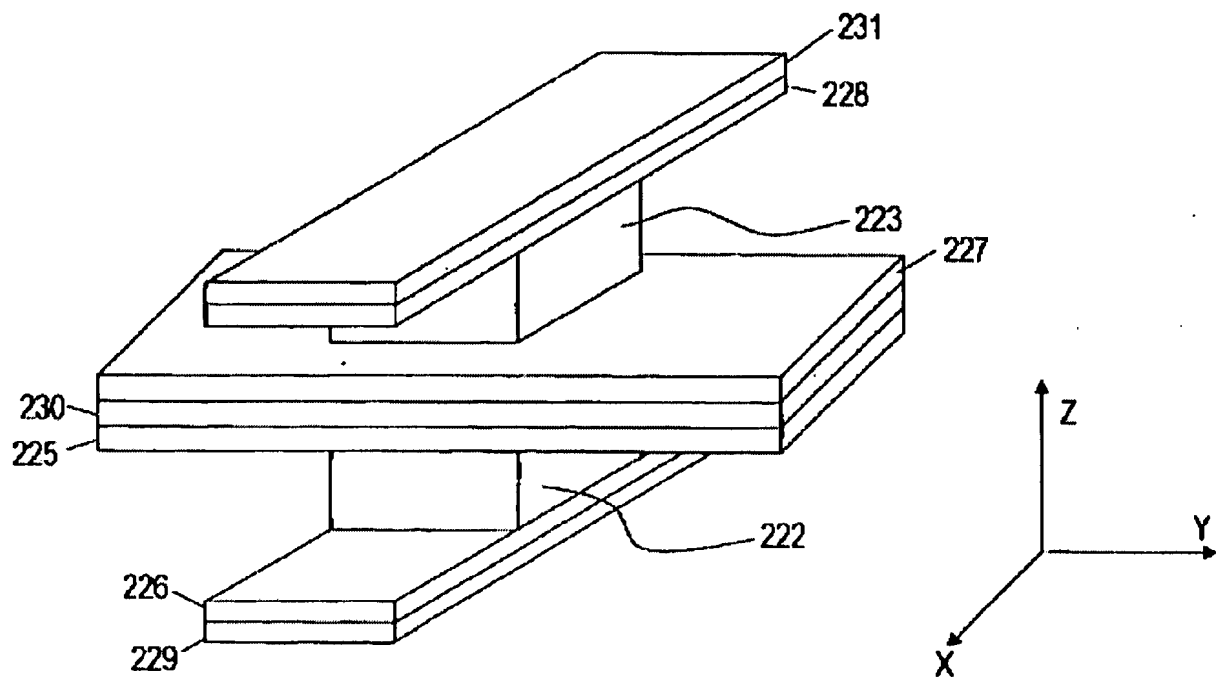


FIGURE 6

Fig. 6 of Perner discloses a magnetic recording device having a second conductor (225), a first conductor (226), and a magnetic recording element (222) connected to the first conductor (226) in order along a hard axis (X) direction. The magnetic recording element (222) includes a straight line of the magnetic recording element (222) parallel to an easy axis (Y) (a line runs along with the Y axis), the easy axis (Y) extending perpendicular to the direction (X), the first conductor (226) and magnetic recording element (222) extend along the hard axis (X) and Fig. 6 also discloses the first conductor (226) and the magnetic recording element (222) extend along the hard axis (X) while the second conductor (225) extends along the easy axis (Y). The hard axis (X) and the easy axis (Y) extend perpendicular to the direction. The

side of the magnetic recording element (222) and the side of the first conductor (226) are aligned with each other along with the hard axis (X).

As explained above, the same ground from previous office action is applying to this office action.

Conclusion

6. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

7. Any inquiry concerning this communication from the examiner should be directed to Dang Nguyen, who can be reached by telephone at (571) 272-1955. Normal contact times are M-F, 8:00 AM - 4:30 PM.

Application/Control Number:
10/808,613
Art Unit: 2824

Page 9

Upon an unsuccessful attempt to contact the examiner, the examiner's supervisor, Richard Elms, may be reached at (571) 272-1869.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, whose telephone number is (703) 305-3900. The faxed phone number for organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the Status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC@uspto.gov.

Dang Nguyen 11/12/2007



ANH PHUNG
PRIMARY EXAMINER